IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Jim HUNTER, et al.	)	Confirmation No: 2175
	)	
Application No.: 10/050,994	)	Group Art Unit: 2872
	)	
Filed: January 22, 2002	)	Examiner: Alessandro V. Amari

For: HIGH CONTRAST GRATING LIGHT VALVE

Mail Stop Appeal Briefs - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NOTICE OF NON-COMPLIANT APPEAL BRIEF

Sir:

In response to the Notification of Non-Compliant Appeal Brief mailed April 29, 2008, the period for response to which is set to expire on May 29, 2008, enclosed please find the status of all claims and summary of claimed subject matter not included in the Appeal Brief filed April 25, 2008. Favorable reconsideration is requested.

III. STATUS OF CLAIMS

Claims 1 and 3-10 are rejected. The claims pending on appeal are Claims 1 and 3-10.

1. (Rejected) A reflective light processing element, comprising:

a substrate;

a dielectric layer formed on the substrate;

a conductive trace formed on the dielectric layer, the conductive trace allowing charges trapped at the dielectric layer to escape wherein said trapped changes are present at least on the surface of the dielectric layer; and

a plurality of ribbons formed above the substrate and the conductive trace.

2. (Canceled)

3. (Rejected) The reflective light processing element of claim 1, where said trapped charges are formed, with respect to the dielectric layer, during operation of said reflective light processing element.

4. (Rejected) A reflective light processing element, comprising:

a substrate;

a dielectric layer formed on the substrate;

a conductive trace formed on the dielectric layer, the conductive trace allowing charges

trapped in the dielectric layer to escape; and

a plurality of ribbons formed above the substrate and the conductive trace, wherein each of said ribbons comprise atop surface that is reflective and said reflective surfaces exhibit the same degree of reflectively.

5. (Rejected) A high contrast grating light valve comprising a silicon substrate;

a protective dielectric layer formed on the substrate;

a first set of ribbons each with a first average width W_a and a second set of ribbons each with a second average width W_b, wherein the ribbons of the first set alternate between the ribbons of the second set and, one of said first and second set of ribbons is configured to move relative to the other to constructively and destructively interfere with an incident light source having a wavelength X;

wherein said substrate comprises a silicon wafer protected by a dielectric layer and a conductive trace formed at least partly on the protective layer and in electrical contact with said substrate, allowing charges trapped on the protective layer to escape, wherein each of said first and second set of ribbons comprises a top surface which is reflective, and said reflective surfaces exhibit the same degree of reflectivity.

6. (Rejected) The grating light valve of Claim 2, wherein said dielectric layer comprises silicon dioxide.

7. (Rejected) The grating light valve of Claim 2, wherein said conductive trace is

comprised of aluminum.

8. (Rejected) The grating light valve of Claim 2, wherein width Wa is $\leq W_b$.

9. (Rejected) The grating light valve of Claim 2, wherein the top surfaces of the ribbons in said first set and the top surfaces of the ribbons in said second set and regions of the surface between the ribbons of the first set and second set have reflective surfaces.

10. (Rejected) The grating light valve of Claim 9, wherein the reflective surfaces comprise aluminum.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

The invention addressed in the claims on appeal relates to a reflective light processing element including a substrate (Reference Character 102 of Fig. 1A), with a dielectric layer (typically silicon oxide – Specification, p. 11, ll. 1 – 14). At least one set of ribbons (100) is formed above the substrate with spaces between the ribbons exposing the substrate surface to incident light, as well as the tops of the ribbons. The surfaces of both the ribbons and the substrate exposed to the incident light are coated with reflective material 104. Incident light from a common source will travel a different length to the exposed reflective surface of the substrate than the reflective surface of the ribbons. This distance, or gap, between the ribbons and the substrate, is controlled, so that the reflected incident light is either in a condition for destructive interference or constructive interference, thereby modulating the intensity of the incident light. (Specification, p. 2, l. 10 – p. 3, l. 4).

As recited in Claim 1, the dielectric layer of the substrate 102 features a conductive trace which allows charges that build up during operation on the surface of the substrate 102 during operation of the reflective light processing element. This conductive trace is preferably on and through the dielectric layer, and grounded to the body of the substrate – which acts as the ground electrode. This prevents charges accumulating on the surface from impacting performace during operation of the micromachine. (Specification, p. 11, l. 1 – p. 12, l. 18).

The degree of reflectivity of the ribbons can be altered by selecting the reflective material that forms the ribbon tops, and the exposed surface of the substrate 104. Aluminum is representative reflective material, as is silver. These are conveniently deposited by conventional means on the ribbons, which, like the underlying substrate, are typically formed of a dielectric

material. (specification, p.3, ll. 3 – 7). Independent claim 4 specifies that the degree of reflectivity of the top of each of the ribbons (there may be more than one set of ribbons, see Figure 2A, (ribbon sets 204 and 205). At least one of the formed set of ribbons is moveable, with respect to their distance from the substrate, by application of an appropriate bias voltage. This can be used to alter the distance, and thus move the ribbons from a position of constructive interference to destructive, thereby altering the intensity of the reflected light.

Both independent claims 4 and 5 indicate that the light reflective device is a high contrast grating light valve, a type of miniature diffraction grating. One example of grating light valves, or GLVs, of the prior art is U.S. Patent 5,311,360. (Specification, p. 1, ll. 16 – 25).

Independent Claim 5 further requires that the device comprise two separate set of alternating ribbons formed above the substrate (204 and 205) which are moveable, at least one set of ribbons, relative to the other set (See Figure 2b) so as to move between situations of constructive and destructive light interference for light of any given wavelength. Relative movement between sets of ribbons (Figure 3) can be achieved through a variety of means, but is preferably achieved by application of a bias voltage across the ribbons and substrate to create an electrostatic attraction. (Specification, p. 4, ll. 6 – 11).

The Commissioner is hereby authorized to charge any fees, including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account 10-0233.

Respectfully submitted,

Date: May 29, 2008
Patent Administrator
Jagtiani + Guttag, LLLP
10363-A Democracy Lane
Fairfax, VA 22030
Telephone: (703) 591-2664
Facsimile: (703) 591-5907
CUSTOMER NO: 22506

/Steven B. Kelber/
Steven B. Kelber
Attorney for Applicants
Reg. No.: 30,073

Customer No. 22506